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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/750,609	12/31/2003	Deliang Yang	C-2734	8914

7590 07/05/2006

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EXAMINER

MERCADO, JULIAN A

ART UNIT	PAPER NUMBER
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1745

DATE MAILED: 07/05/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/750,609

Applicant(s)

YANG ET AL.

Examiner

Julian Mercado

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 01 March 2006.
2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
4a) Of the above claim(s) _____ is/are withdrawn from consideration.
5) ☒ Claim(s) 1-7 is/are allowed.
6) ☒ Claim(s) 8-14 is/are rejected.
7) ☐ Claim(s) _____ is/are objected to.
8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
10) ☒ The drawing(s) filed on 3/1/06 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Remarks

This Office action is responsive to applicant's amendment filed March 1, 2006.

Drawings

The drawings were received on March 1, 2006. These drawings are acceptable.

Claim Rejections - 35 USC § 112

The rejection of claim 5 under 35 U.S.C. 112, second paragraph has been withdrawn.

Claim Rejections - 35 USC § 102 and 103

The rejection of claims 1, 3-5 and 7 under 35 U.S.C. 102(b) based on Vitale (U.S. 5,981,098) has been withdrawn.

The rejection of claims 2 and 6 under 35 U.S.C. 103(a) based on Vitale has been withdrawn.

(new rejection)

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 8-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Vitale in view of Meacher et al. (U.S. Pat. 5,858,569) and as evidenced by Hill et al. (U.S. Pat. 6,379,833 B1)

This new rejection based on Vitale is applied as previously detailed in the prior Office action for claims 1, 3-5 and 7 (discussion under 35 U.S.C. 102(b)) and as previously detailed for claims 2 and 6 (discussion under 35 U.S.C. 103(a)). The examiner notes that new claims 8-14 are modeled in one-to-one correspondence after claims 1-7, verbatim, with the additional clause defining the two pass circuits as being defined within porous layers of the flow field (80) (amendatory language, as acknowledged by applicant, being underlined). To this extent, applicant submits that in alleged contrast to the presently claimed invention, Vitale uses sealed, non-porous channels 216. This distinction is not persuasive. Vitale has been reviewed and is found silent on limiting the flow field plate, which is stainless steel, as being a *non-porous* stainless steel. It appears to the examiner that applicant's interpretation of Vitale as being a non-porous material is an improper extension of the patentees' disclosure of "maintain[ing] adequate pressure drop along the flow channel." See col. 9 line 12 et seq. That is, while the patentees may disclose a desire for prevention of mixing between fluids carried in adjacent flow channels, the patentees do so not by employing a non-porous material per se but rather by use of *sidewalls* [252] along the flow channels. (ib.) There is no disclosure in Vitale that limits the stainless steel flow field plate as being non-porous. Notwithstanding, absent of a showing that Vitale's flow field is requisitely non-porous stainless steel, Meacher et al. teaches stainless steel (such as type 316L) as part of a fuel cell flow field plate, while Hill et al. is relied upon solely as evidence for its porosity property. See Meacher et al., col. 4 line 19-35 and Hill et al., col. 5 line 58 et seq.

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The skilled artisan would find obvious to employ porous stainless steel in Vitale's invention as this type of stainless steel "does not contribute damaging metallic ions into the stack environment." See Meacher et al., ib.

Allowable Subject Matter

Claims 1-7 are allowed.

The following is an examiner's statement of reasons for allowance: the prior art of record does not teach or suggest the instant invention regarding a reactant flow field having a common turn-around in fluid communication with each two-pass circuit. The claimed "common turn-around" has been interpreted as a turnaround that is common to all of the two-pass circuits, as asserted by applicant on page 15 of the present response. The examiner acquiesces that in Vitale, the turnaround [150'] is specifically isolated to each two-pass circuit. See Figure 5.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO**

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MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Julian Mercado whose telephone number is (571) 272-1289. The examiner can normally be reached on Monday through Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick J. Ryan, can be reached on (571) 272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0661.

A handwritten signature in black ink, appearing to read "Julian", with a stylized flourish below it.A handwritten signature in black ink, appearing to read "Patrick J. Ryan", with a stylized flourish above it.

PATRICK JOSEPH RYAN
SUPERVISORY PATENT EXAMINER